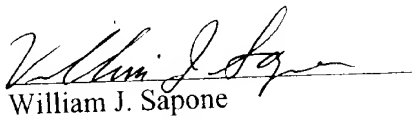
REMARKS

Entry of this amendment is solicited to confirm the specification and claims to the sequence listing filed on November 5, 2001. Replacement paragraphs and the claims as amended are enclosed herewith.

No fee is believed required for this amendment. However, if a fee is required, please charge the fee to deposit accout no. 04-0838.

Respectfully submitted,



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REPLACEMENT PARAGRAPHS FOR THE SPECIFICATION

Page 3, last paragraph:

These and other objects of the present invention are achieved by a pepteiode of the formula

Leu-Glu-Ser-Tyr-Thr (SEQ. ID NO: 1)

or

Ile-Lys-Glu-Tyr-Phe-Thr-Ser (SEQ. ID NO: 2).

Page 4, first 3 full paragraphs:

A method for treating the symptoms associated with neuronal cell death in a person caused by a neurological degenerative disease comprises administering a therapeutically effective amount of a peptide of the formula

Leu-Glu-Ser-Tyr-Thr (SEQ. ID NO: 1)

or

Ile-Lys-Glu-Tyr-Phe-Thr-Ser (SEQ. ID NO: 2)

The invention comprises a peptide of the formula Leu-Glu-Ser-Tyr-Thr (SEQ. ID NO: 1) or Ile-Lys-Glu-Tyr-Phe-Thr-Ser (SEQ. ID NO: 2) or a physiologically acceptable salt thereof. A pharmaceutical composition comprising as a active ingredient at least one peptide of the formula Leu-Glu-Ser-Tyr-Thr (SEQ. ID NO: 1) or Ile-Lys-Glu-Tyr-Phe-Thr-Ser (SEQ. ID NO: 2) or a pharmaceutically acceptable salt thereof, for treating the symptoms caused by neuronal cell loss. The pharmaceutical composition can further comprise a pharmaceutically acceptable carrier.

The invention also includes a method for treating the symptoms caused by a loss of neurons comprising administering to a person suffering from a disease causing neuronal cell loss a therapeutically effective amount of a peptide of formula Leu-Glu-Ser-Tyr-Thr

(SEQ. ID NO: 1) or Ile-Lys-Glu-Tyr-Phe-Thr-Ser (SEQ. ID NO: 2) or pharmaceutically acceptable salt thereof. The method can comprise either the formula Leu-Glu-Ser-Tyr-Thr (SEQ. ID NO: 1) or Ile-Lys-Glu-Tyr-Phe-Thr-Ser (SEQ. ID NO: 2). According to the method, the peptide is administered by oral, intranasal, buccal, parenteral, topical or rectal administration.

Page 7, first full paragraph:

When the peptides were added to primary cultures of mixed rat neurons/glia, together with 1 pM gp120 (RF isolate), which by itself killed about half the neurons in the dish (Fig. 1), neuronal death could be inhibited. In a dose-dependent fashion, significant increases in cell counts were observed from cultures treated with gp120 alone, with IKEYFTS (SEQ. ID NO: 2) and LESYT (SEQ. ID NO: 1) preventing neuronal loss caused by gp120. The peptide IKEYFTS (SEQ. ID NO: 2) had an EC50 of 100 nM and was fully protective at 10μM, while LESYT (SEQ. ID NO: 1) was partially protective at 10μM. Specificity is shown in that the shorter pentapeptide IKEYF (SEQ. ID NO: 3) was inactive. The dotted line in Figure 1 represents the mean number of neurons in control cultures.

THE CLAIMS AS AMENDED

Claim 1. A peptide of the formula

Leu-Glu-Ser-Tyr-Thr (SEQ. ID NO: 1)

or

Ile-Lys-Glu-Tyr-Phe-Thr-Ser (SEQ. ID NO: 2)

or a physiologically acceptable salt thereof.

Claim 2. A pharmaceutical composition comprising as an active ingredient at least

one peptide of the formula

Leu-Glu-Ser-Tyr-Thr (SEQ. ID NO: 1)

or

Ile-Lys-Glu-Tyr-Phe-Thr-Ser (SEQ. ID NO: 2)

or a pharmaceutically acceptable salt thereof, for treating the symptoms caused by neronal cell loss.

Claim 4. A method for treating the symptoms caused by a loss of neurons comprising administering to a person suffering from a disease causing neuronal cell loss a therapeutically effective amount of a peptide of formula

Leu-Glu-Ser-Tyr-Thr (SEQ. ID NO: 1)

or

Ile-Lys-Glu-Tyr-Phe-Thr-Ser (SEQ. ID NO: 2)

or a pharmaceutically acceptable salt thereof.

Claim 5. The method of claim 4 wherein the formula is

Leu-Glu-Ser-Tyr-Thr (SEQ. ID NO: 1).

Claim 6. The method of claim 4 wherein the formula is

Ile-Lys-Glu-Tyr-Phe-Thr-Ser (SEQ. ID NO: 2)

REPLACEMENT ABSTRACT

The HIV-1 envelope protein gpl20 is toxic to rodent and human neurons by indirect mechanisms requiring accessory glial cells. Chemokines are known to block gpl20 interactions with chemokine receptors on T cells, macrophages, and microglia, thereby preventing viral infection. Gpl20-induced neuronal killing in rat hippocampal cultures was partially or completely prevented by a specific short peptides related to chemokines, specifically IKEYFTS (SEQ. ID NO: 2) and LESYT (SEQ. ID NO: 1). These peptides thus have use in the treatment of neurological degenerative diseases having symptoms associated with neuronal cell death.